

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 93-125
REVISED WASTE DISCHARGE REQUIREMENTS AND
RESCISSION OF WASTE DISCHARGE REQUIREMENTS ORDER NO. 88-039 and ORDER NO. 87-048

WICKLAND OIL MARTINEZ LIMITED PARTNERSHIP
CLASS II SURFACE IMPOUNDMENTS
MARTINEZ TERMINAL
MARTINEZ, CONTRA COSTA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, hereinafter called the Board, finds that:

Facility and Site Description

1. Wickland Oil Martinez Limited Partnership, (hereinafter called Discharger) presently owns and operates the Martinez Terminal Facility, a bulk petroleum storage, transfer, and blending facility (hereinafter called the Facility). The Facility is presently used to store refined and unrefined petroleum hydrocarbons.
2. The Facility is located at 2801 Waterfront Road near the south shore of the Carquinez Strait in the City of Martinez.
3. The Discharger currently operates a class II surface impoundment which receives wastewater consisting of stormwater runoff, product water bleed-off, and groundwater which has been extracted for remediation purposes from beneath the Facility.
4. Martinez Terminals Limited, (hereinafter called MTL) owned and operated the Facility from November 18, 1987 to August 20, 1991. The MTL partnership terminated after transferring ownership to Wickland.
5. Landsea Terminal Incorporated, (hereinafter called LTI) owned and operated the Facility prior to November 18, 1987. LTI went into bankruptcy, and the Facility was purchased by MTL at a foreclosure sale on November 18, 1987.

Description of Surface Impoundment

6. Two former surface impoundments which existed at the Facility were found to be out of compliance with the Class II surface impoundment requirements of Chapter 15. Subsequently the two former surface impoundments were removed in September 1988 and a new Class II surface impoundment was constructed in its place according to the applicable criteria of Chapter 15:
7. The new surface impoundment receives water which has been treated in an oil/water separator. This treated water may contain residual petroleum hydrocarbons and heavy metals which have not been completely removed by the oil/water separator.
8. The new Class II surface impoundment is rectangular shaped, measures approximately 180 by 140 feet, and was constructed to contain a storage capacity of approximately 2.8 acre feet.

9. The new surface impoundment was constructed with two low permeability liners and a leachate collection system.
10. Three wells: W1, W2, and W3 have been installed around the surface impoundment to monitor the shallow groundwater for the purpose of providing a periodic assessment of the impact the surface impoundment is having on the shallow groundwater.
11. A Claymax bentonite cutoff wall was constructed in a trench measuring 1.5 feet wide by 8 feet deep along the entire length of the western side of the surface impoundment. The purpose of this cutoff wall is to provide a physical barrier from contaminated soil and groundwater located near the surface impoundment's western side from migrating under the surface impoundment.

Related Orders

12. Site Cleanup Requirements Order No. 93-062 requires the completion of the following tasks:
 - a) Submit a workplan and a technical report related to the recovery of free phase liquid petroleum hydrocarbons from all areas contaminated with liquid petroleum hydrocarbons beneath the Facility.
 - b) Submit a workplan and a technical report related to the remediation of contaminated soil and groundwater beneath the Facility.
13. Waste Discharge Requirements Order No. 88-139 updated Waste Discharge Requirements Order No. 87-048 and included the following:
 - a) A change of ownership from LTI to MTL.
 - b) Granted an exemption to the Chapter 15 requirement which ensures that waste will be a minimum of five feet above the maximum anticipated elevation of the underlying groundwater. The new surface impoundment is required to be operated to ensure that wastes will be a minimum of three feet above the maximum elevation of the underlying groundwater.
 - c) Required the submittal of a report documenting water level elevations in the surface impoundment area and surface impoundment design which will reflect the three feet of separation between waste and the maximum anticipated elevation of groundwater.
 - d) Required the two former surface impoundments to be modified with a liner or liners, and a leachate collection system if necessary.
 - e) Required MTL to inspect and repair the oil/water separator.
14. Waste Discharge Requirements Order No. 87-048 required LTI to complete the following tasks:
 - a) Comply with all applicable Chapter 15 construction, siting, and monitoring requirements for the two surface impoundments.
 - b) Submit a closure plan for the two former surface impoundments which complies with the applicable requirements of Chapter 15.
 - c) Submit an operations plan.
 - d) Submit a plan documenting compliance with the Federal Spill Prevention Control and Countermeasures regulations.
 - e) Submit a contingency plan that will address the dark oil and gasoline products tank farm areas.

Contamination

Soil:

15. MTL submitted an April 1989 Report on Design and Construction Class II Surface Impoundment. The existing sludges in the two former surface impoundments were removed and confirmation sampling was conducted to verify that the contaminated materials were removed. The confirmation results indicated that total petroleum hydrocarbons (TPH) (by EPA Method 8015 mod.) were below 10 mg/kg in the pond bottoms, north side, south side, and east side of the excavation. The report indicated that the west wall of the excavation near the oil/water separator contained TPH as gasoline higher than the proposed cleanup level of 10 mg/kg, and Regional Water Board staff verbally approved of the pond soil confirmation sampling results and allowed TPH in excess of 10 mg/kg to remain in place.

Groundwater:

16. MTL submitted an April 1989 Report on Monitoring Well Installation and Groundwater Sampling for the surface impoundment monitoring wells: W1, W2, and W3. This report noted groundwater contamination as high as:

1,2-dichloroethene	(EPA Method 601)	123 ug/l (W1)
trichloroethylene	(EPA Method 601)	80 ug/l (W1)
benzene	(EPA Method 602)	2500 ug/l (W1)
toluene	(EPA Method 602)	2000 ug/l (W1)
ethylbenzene	(EPA Method 602)	620 ug/l (W1)
total xylenes	(EPA Method 602)	1700 ug/l (W1)
naphthalene	(EPA Method 625)	36 ug/l (W1)
TPH as gasoline	(EPA Method 8015 mod)	24,000 ug/l (W1)
lead	(EPA Method 7420)	80 ug/l (W1)
arsenic	(EPA Method 7420)	50 ug/l (W3)

This report concluded that the contamination observed in monitoring well W1 originated from a leak in a stormwater feed line which serves the oil/water separator located near W1 and the new surface impoundment. Additionally the report concluded that the feed line was sleeved in 1987, and therefore the source of the contamination has been eliminated.

17. The Discharger has indicated that contaminated soil and groundwater located in the vicinity of groundwater monitoring well W1 located near the western side of the surface impoundment will be managed under the requirements of Site Cleanup Requirements Order No. 93-062.
18. The Discharger has submitted a request dated August 10, 1993 for exemption to unsaturated zone monitoring pursuant to Chapter 15, Article 5, Section 2550.7. (d). The Discharger has cited that 1.) there is no unsaturated zone monitoring device or method designated to operate under the subsurface conditions at the new surface impoundment, and 2.) the installation of the unsaturated zone monitoring devices would require unreasonable dismantling or relocation of permanent structures.

Cost Recovery

19. The Board's staff has notified the Discharger that pursuant to Sections 25270.9 and 25270.11 of Chapter 6.67, Division 20 of California's Health and Safety Code, the Discharger shall be liable to the extent of the reasonable costs actually incurred in overseeing or contracting for cleanup or abatement efforts. The Discharger has agreed to reimburse the State according to Sections 25270.9 and 25270.11.

20. Pursuant to Section 13304 of the Water Code, the Discharger is hereby notified that the Board is entitled to, and may seek reimbursement for, all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order. The Discharger shall reimburse the Board upon receipt of a billing for those costs.

Basin Plan

21. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region on December 17, 1986 and amended it on August 19, 1987, July 18, 1989 and December 11, 1991. This Order implements the water quality objectives for the Basin Plan.

Beneficial Uses

22. The existing and potential beneficial uses of Carquinez Strait and contiguous water bodies are:
- a. Water contact recreation;
 - b. Non-contact water recreation;
 - c. Wildlife Habitat;
 - d. Preservation of Rare and Endangered Species;
 - e. Estuarine Habitat;
 - f. Fish migration and spawning;
 - g. Industrial service supply;
 - h. Navigation;
 - i. Commercial and Sport Fishing;
 - j. Shellfish Harvesting; and,
 - k. Municipal and Domestic Supply.
23. The existing and potential beneficial uses of the groundwater in the area are:
- a. Municipal and Domestic Supply;
 - b. Industrial Process and Service Supply; and,
 - c. Agricultural Supply.

California Environmental Quality Act

24. This action is an Order to enforce the laws and regulations administered by the Board. This action is categorically exempt from the provisions of the California Environmental Quality Act pursuant to Section 15321, Title 14, California Code of Regulations.

Notice and Meeting

25. The Board has notified the Discharger and interested agencies and persons of its intent under California Water Code Section 13304 to prescribe Site Cleanup Requirements for the discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
26. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code and Section 25270 of the California Health and Safety Code, that the Discharger shall cleanup and abate the effects described in the above findings as follows:

A. Prohibitions

1. The discharge of wastes or hazardous materials in a manner which will degrade water quality or adversely affect the beneficial uses of the waters of the State is prohibited.
2. Further significant migration of pollutants through subsurface transport to waters of the State is prohibited.
3. Activities associated with subsurface investigation and cleanup which will cause significant adverse migration of pollutants are prohibited.
4. The discharge of pollutants onto land, into groundwaters or surface waters, except as allowed by an NPDES permit, is prohibited.
5. The discharge of wastewater from washing the interior of trucks and associated pipe flushing operations to the surface impoundment is prohibited. The washing of truck cabs and the exterior of trucks is not prohibited.
6. The storage, handling, treatment or disposal of soil or groundwater containing pollutants shall not create a nuisance as defined in Sections 13050(l) and 13050(m) of the California Water Code.
7. The Discharger shall not cause the following conditions to exist in waters of the State at any place outside the waste management facility:
 - a. Surface Waters
 1. Floating, suspended, or deposited macroscopic particulate matter or foam.
 2. Bottom deposits or aquatic growth.
 3. Alteration of temperature, turbidity, or apparent color beyond natural background levels.
 4. Visible, floating, suspended or deposited oil or other products of petroleum origin.
 5. Toxic or other deleterious substances to be present in concentrations or quantities which may cause deleterious effects on aquatic biota, wildlife or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentrations.
 - b. Groundwater
 1. The groundwater shall not be degraded as a result of the waste disposal operation.
8. The storage of stormwaters for the purpose of removal by evaporation within the dark oil tank farm dike area is prohibited after May 31, 1996.

B. Specifications

1. The impoundment will be operated such that scouring at points of stormwater discharge and by wave action at the water line will not degrade the pond lining.
2. Rainwater falling within the containment area of the dark oil tank farm area will be allowed to evaporate in the dark oil tank dike area or the surface impoundment. Rainwater falling within the containment area of the light oil tank farm area(s) will be allowed, after passing through an oil/water separator, to evaporate only in the surface impoundment. Any oily runoff that occurs from the pump heater block area within this containment area will be treated in an oil/water separator and routed to the surface impoundment.
3. The Discharger shall remediate soil and water contamination, which actually or threatens to degrade water quality or adversely affect the beneficial uses of the waters of the State.
4. The surface impoundment shall prevent the migration of wastes to adjacent geologic materials, groundwater, or surface water, throughout the operation, closure and post-closure periods.
5. The surface impoundment shall be operated to ensure that wastes will be a minimum of three feet above the highest anticipated elevation of underlying groundwater.
6. The surface impoundment shall maintain a foundation capable of supporting the containment structures and capable of withstanding hydraulic pressure gradients to prevent failure due to settlement, compression, or uplift.
7. The surface impoundment shall be maintained to withstand ground accelerations associated with the maximum credible earthquake without damage to the foundation, the containment structures, and other structures which control leachate, surface drainage, or erosion.
8. The containment structures of the surface impoundment shall be maintained to preclude failure as a result of potential rapid geologic changes.
9. The pipeline discharge to surface impoundments shall be either equipped with devices, or fail-safe operating procedures, to prevent overfilling.
10. The surface impoundment shall be operated to accommodate seasonal precipitation of a 10 year return frequency season and precipitation conditions of a 24 hour storm with a 1000 year return frequency to prevent overtopping. In any case, a minimum of two feet freeboard shall be maintained in the surface impoundment at all times.
11. The surface impoundment shall be protected from washout or erosion and from inundations occurring as the result of a flood having a recurrence frequency of 100 years.

C. Provisions

The Discharger shall comply with the Prohibitions and Specifications above according to the following time schedule:

1. The Discharger shall develop and submit a monitoring program plan acceptable to the Executive Officer, which will meet the requirements of the current groundwater monitoring requirements of the California Code of Regulation, Chapter 15, Article 5. PLAN DUE: No later than February 21, 1994.
2. The Discharger shall submit an operation and maintenance plan, acceptable to the Executive Officer, including, but not necessarily limited, to the following:
 - a. The periodic measurement of leachate levels in the leachate collection and removal system.
 - b. The periodic removal of surface impoundment sediments and the inspection of the liner/containment system.

PLAN DUE: No later than February 21, 1994

3. The Discharger shall install a surface water control system which will route all stormwater collected within the dark oil tank farm dike area, through the oil/ water separator and to the surface impoundment for evaporation.

WORKPLAN DUE: No later than March 1, 1996

COMPLETE INSTALLATION: No later than May 31, 1996

4. Upon Regional Water Quality Control Board staffs' approval of the Discharger's Groundwater Monitoring Program Plan (Provision C.1), the Discharger shall implement within one year the Groundwater Monitoring Program Plan.
5. Equipment shall be provided to prevent any leak or spill from the transfer of petroleum products from tank, truck, barge, or pipeline from contacting stormwater runoff and entering waters of the State.
6. Regional Board staff has reviewed the Dischargers exemption request and hereby grants the Discharger an exemption from unsaturated zone monitoring.
7. Regional Board Waste Discharge Requirement Orders Number 88-039 and 87-048 are hereby rescinded.
8. The Discharger is required to reimburse the State for all reasonable costs of the State incurred in overseeing or contracting for cleanup or abatement efforts related to the surface impoundment located within the Martinez Terminal.
9. The Discharger shall maintain a copy of this Order at the Facility so as to be available at all times to project personnel.
10. Technical reports/plans, submitted by the Discharger, in compliance with the Prohibitions, Specifications, and Provisions of this Order shall be submitted to the

Board on the schedule specified herein. These reports/plans shall consist of a letter report that includes the following:

- a. Identification of any obstacles which may threaten compliance with the schedule;
 - b. In the event of non-compliance with any Prohibition, Specification or Provision of this Order, written notification which clarifies the reasons for non-compliance and which proposes specific measures and a schedule to achieve compliance. This written notification shall identify work not completed that was projected for completion, and shall identify the impact of non-compliance on achieving compliance with the remaining requirements of this Order; and,
 - c. In the first self-monitoring report, an evaluation of the current groundwater monitoring system and a proposal for modifications as appropriate.
11. All submittals of hydrogeological plans, specifications, reports, and documents prepared in compliance with the provisions of this Order (except quarterly progress and self-monitoring reports), shall be signed by and stamped with the seal of a registered geologist, registered engineering geologist, or registered professional engineer.
 12. All samples shall be analyzed by State certified laboratories or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control records for Board staff review.
 13. The Discharger shall maintain in good working order, and operate as efficiently as possible, any Facility or control system installed to achieve compliance with the requirements of this Order.
 14. Copies of all correspondence, reports, and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order, submitted by the Discharger, shall also be provided to the following agencies:
 - a. City of Martinez;
 - b. Contra Costa County Health Department; and,
 - c. California Environmental Protection Agency, Department of Toxic Substances Control.
 15. The Discharger shall permit the Board or its authorized representative, in accordance with Section 13267 (c) of the California Water Code, the following:
 - a. Entry upon premises in which any pollution sources exist, or may potentially exist, or in which any required records are kept, which are relevant to this Order;
 - b. Access to copy all records required to be kept under the terms and conditions of this Order;
 - c. Inspection of any monitoring equipment or methodology implemented in response to this Order; and,

- d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the Discharger.
- 16. The Discharger shall file with this Board a report of any material change or proposed change in the character, location, or quantity of this waste discharge. For the purpose of these requirements, this includes any proposed change in the boundaries, contours, or ownership of the disposal areas.
 - 17. The Board considers the property owner and site operator to have a continuing responsibility for correcting any problems within their reasonable control which arise in the future as a result of this waste discharge or water applied to this property during subsequent use of the land for other purposes.
 - 18. These requirements do not authorize the commission of any act causing injury to the property of another or of the public, do not convey any property rights, do not remove liability under federal, state or local laws, and do not authorize the discharge of waste without the appropriate federal, state or local permits, authorizations, or determinations.
 - 19. If any hazardous substance is discharged in or on any waters of the state, or discharged and deposited, or probably will be discharged in or on any waters of the state, the Discharger shall:
 - a. Report such discharge to the following:
 - (1) This Regional Board at (510) 286-1255 on weekdays during office hours from 8 a.m. to 5 p.m.; and,
 - (2) The Office of Emergency Services at (800) 852-7550.
 - b. A written report shall be filed with the Regional Board within five working days and shall contain information relative to the following:
 - (1) The nature of waste or pollutant;
 - (2) The quantity involved and the duration of incident;
 - (3) The cause of spill;
 - (4) The estimated size of affected area;
 - (5) The corrective measures that have been taken or planned, and a schedule of these measures; and,
 - (6) The persons/agencies notified.
 - 20. The Board will review this Order periodically and may revise the requirements when necessary.
 - 21. If the Discharger is delayed, interrupted or prevented from meeting one or more of the completion dates specified in this Order, the Discharger shall promptly notify the Executive Officer and the Board shall consider revision to this Order.

I, Steven R. Ritchie, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region on October 20, 1993


Steven R. Ritchie
Executive Officer

Attachments:

Figure 1, Site Location Map

Figure 2, Surface Impoundment Potentiometric
Surface Elevation Map

Self Monitoring Program

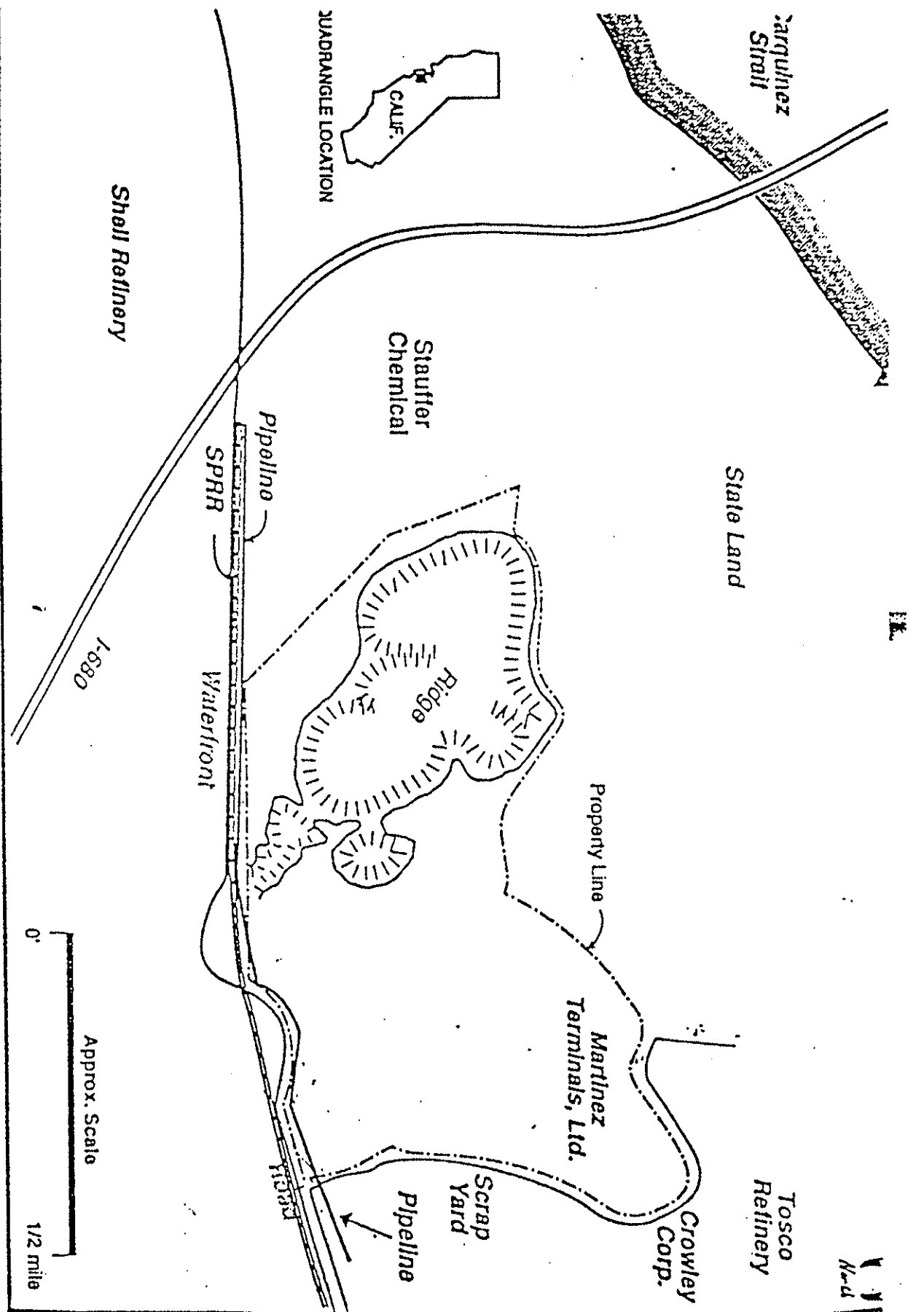


Figure 1
Site Location Map

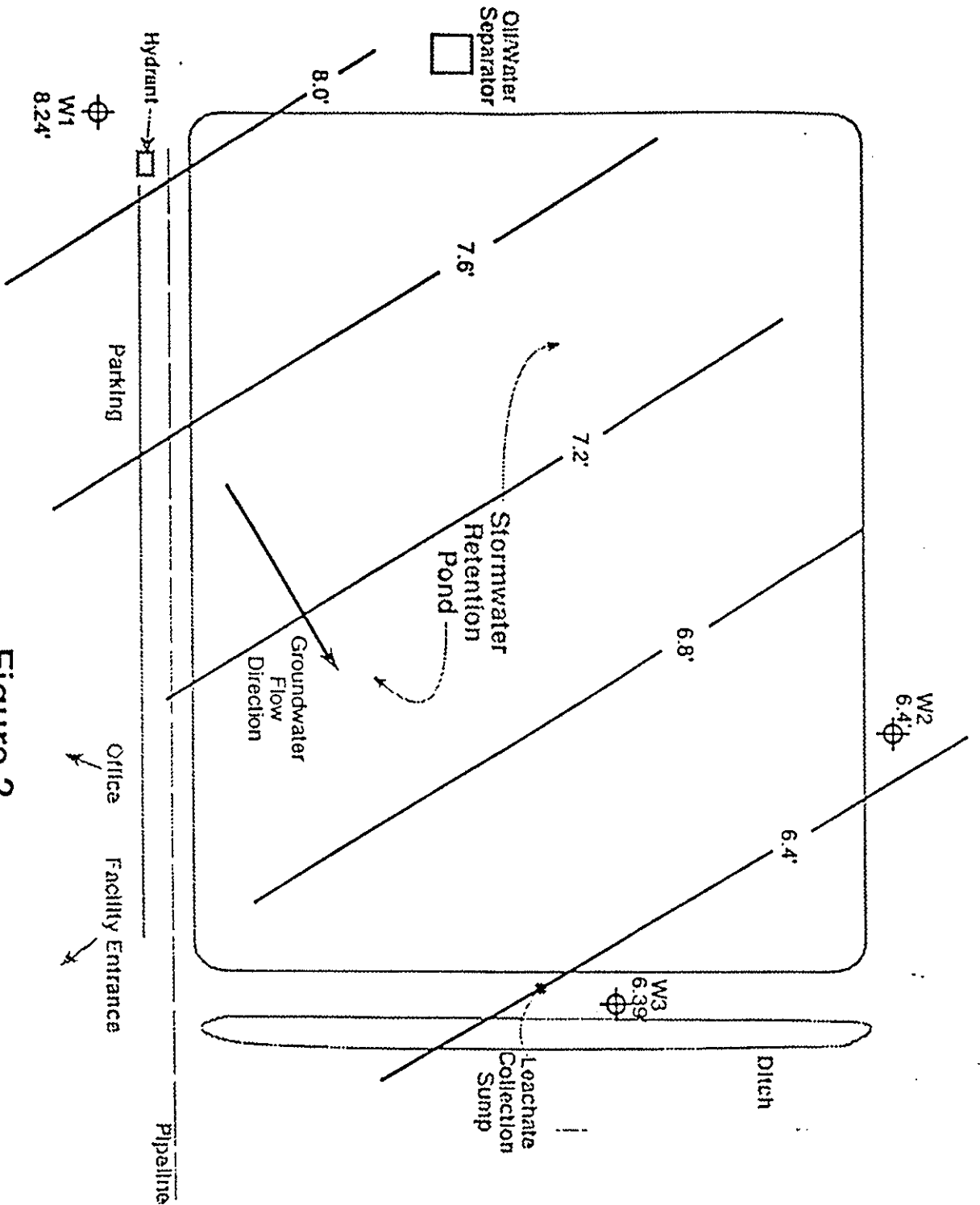


Figure 2

Contoured Potentiometric
Surface Elevations in Feet
Above Mean Sea Level

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN FRANCISCO BAY REGION

SELF MONITORING AND REPORTING PROGRAM

FOR

**WICKLAND OIL MARTINEZ LIMITED PARTNERSHIP
CLASS II SURFACE IMPOUNDMENTS
MARTINEZ TERMINAL
MARTINEZ, CONTRA COSTA COUNTY**

CONTRA COSTA COUNTY

ORDER NO. 93-125

CONSISTS OF

PARTS I, II, and III

PART I

A. GENERAL

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13383, and 13387(b) of the California Water Code and this Regional Board's Resolution No.73-16. This Monitoring and Reporting Program (M&RP), is issued in accordance with Provision C.1 of Regional Board Order No. 93-125.

The principal purposes of a M&RP are: (1) to document compliance with waste discharge requirements and prohibitions established by the Board, (2) to facilitate the prevention and abatement of pollution arising from waste discharge, (3) to develop or assist in the development of standards of performance, and toxicity standards, and (4) to assist the Discharger in complying with the requirements of Article 5, Chapter 15.

B. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analysis shall be performed according to the most recent version of Standard USEPA Methods, and in accordance with an approved sampling and analysis plan. Water and waste analysis shall be performed by a laboratory approved for these analyses by the State of California. Specific methods of analysis must be identified. If methods other than USEPA-approved methods or Standard Methods are used, the exact methodology must be submitted for review and must be approved by the Executive Officer prior to use. The director of the laboratory, or the director's designatee, shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements. In addition, the Discharger is responsible for seeing that the laboratory analysis of all samples from Monitoring Points and Background Monitoring Points meets the following restrictions:

1. The methods of analysis and the detection limits used must be appropriate for the expected concentrations. For detection monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations [i.e., "trace" or "ND"] in data from Background Monitoring Points for that medium, the analytical method having the lowest method detection limit [MDL] – defined in Part I.C.7. – shall be selected from among those methods which would provide valid results in light of any "Matrix Effects" [defined in Part I.C.6.] involved.
2. MDLs and PQLs shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. If the lab suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged accordingly, along with an estimate of the detection limit and quantitation limit actually achieved.
3. All QA/QC data shall be reported, along with the sample results to which it applies, including the analytical method, equipment, practical quantitation limits, recovery rates, relative percent difference and the results of equipment and method blanks, matrix spiked samples, the frequency of quality control analysis, matrix background samples and lab control samples. In addition, analysis results for method blanks or spike recovery shall be reported unadjusted.
4. Statistical procedures for determining the significance of analytical results need not be performed for common laboratory contaminants (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate). Nevertheless, analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for

easy reference by Board staff.

5. Unknown chromatographic peaks shall be reported, along with an estimate of the concentration of the unknown analyte. When unknown peaks are encountered, second column or second method confirmation procedures shall be performed to attempt to identify and more accurately quantify the unknown analyte.
6. In cases where contaminants are detected in QA/QC samples [i.e., field, trip, or lab blanks], the accompanying sample results shall be appropriately reported.
7. The MDL shall always be calculated such that it represents a concentration associated with a 99% reliability of a non-zero result.

C. DEFINITION OF TERMS

1. The "Monitored Media" are those water bearing media that are monitored pursuant to this Monitoring and Reporting Program. The Monitored Media at this Facility is the ground water in the uppermost aquifer, in any other portion of the zone of saturation [§2601 of Chapter 15] in which it would be reasonable to anticipate that waste constituents migrating from the Facility could be detected, and in any perched zones underlying the Facility.
2. The "Constituents of Concern [COC]" are those constituents which are likely to be in the waste in the Facility or which are likely to be derived from waste constituents, in the event of a release. A list of The Constituents of Concern for the Facility will be prepared by the Discharger and submitted to Regional Board staff for review.
3. The "Monitoring Parameters" are a subset of the constituents of concern and are parameters used for the majority of monitoring activity. A list of the Monitoring Parameters will be prepared by the Discharger and submitted to Regional Board staff for review. Monitoring Parameters are used to indicate leakage from the Facility into the monitored media by comparing the monitoring results with the maximum allowable concentration limits established for a given monitored sector. For a detection monitoring program, the monitoring parameters provide a possible indication of a release. During a corrective action period, monitoring parameters provide a means to evaluate the effectiveness of the corrective action.
4. "Standard Observations" along the perimeter of the surface impoundment refer to:
 - a) Evidence of liquid leaving or the surface impoundment, estimated size of affected area, and flow rate [show affected area on map];
 - b) Evidence of odors: presence or absence, characterization, source, and distance of travel from source; and
 - c) Evidence of erosion of surface impoundment containment structures.
5. "Standard Analysis and Measurements" refers to:
 - a) Turbidity [only for water samples], in NTU;
 - b) Water elevation to the nearest 1/100th foot above mean sea level [only for ground water monitoring]; and
 - c) Sampling and statistical/non-statistical analysis of the Monitoring Parameters.
6. "Matrix Effect" refers to any increase in the Method Detection Limit or Practical Quantitation Limit for a given constituent as a result of the presence of other constituents -- either of natural origin or introduced through a release -- that are present in the sample of water.

7. "Method Detection Limit [MDL]", for a given analytical laboratory using a given analytical method to detect a given constituent [in spite of any Matrix Effect] means the lowest concentration at which the laboratory can regularly differentiate -- with 99% reliability -- between a sample which contains the constituent and one which does not.
8. "Practical Quantitation Limit [PQL]", for a given analytical laboratory using a given analytical method to determine the concentration of a given constituent [in spite of any Matrix Effect] means the lowest constituent concentration the laboratory can regularly quantify within specified limits of precision that are acceptable to the Regional Board Executive Officer.
9. "Sample & Analysis Period" means the duration separating sampling and analysis events from monitoring points or wells, for a given type of monitoring from the time the next iteration of that event. Unless otherwise specified in this M&RP, the period for sampling and analysis for the Monitoring Parameters is quarterly. The period for sampling and analysis of all Constituents of Concern (COC), is 1 year for the first five years from the date of issuance of this M&RP, and then once every five years after the fifth Annual Report unless the Executive Officer requests to continue the once-per-year COC Sampling and Analysis Event.
10. "Sample & Analysis Event" means the point in time that sampling and analysis is performed from monitoring points or wells, for a given type of monitoring. Unless otherwise specified in this M&RP, the sampling and analysis for the Monitoring Parameters will be quarterly, and the sampling and analysis of all Constituents of Concern will be during the 4th quarter Sampling and Analysis Period.
11. "Reporting Period" means the duration separating the submittal of a monitoring report from the time the next iteration of that report is scheduled for submittal. Unless otherwise specified in this M&RP, the reporting period of the results of the sampling and analysis period is 6 months. The Reporting Period for the Annual Summary Report extends from January 1 of the previous year to December 31 of the current year. The due date for any given report will be 60 days after the end of its Reporting Period, unless otherwise stated.
12. "Receiving Waters" refers to any surface water which actually or potentially receives surface or ground waters which pass over, through, or under waste materials or contaminated soils. In this case the following surface water bodies are considered receiving waters: The Carquinez Strait, and San Francisco Bay.

D. RECORDS TO BE MAINTAINED

Written reports shall be maintained by the Discharger or laboratory, and shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Board. Such records shall show the following for each sample:

1. Identity of sample and of the Monitoring Point or Background Monitoring Point from which it was taken, along with the identity of the individual who obtained the sample;
2. Date and time of sampling;
3. Date and time that analyses were started and completed, and the name of the personnel performing each analysis;
4. Complete procedure used, including method of preserving the sample, and the identity of reagents used;

5. Calculation of results; and
6. Results of analyses, and the MDL and PQL for each analysis.

E. REPORTS TO BE FILED WITH THE BOARD

1. A written **Semi-Annual Monitoring Report** shall be submitted once annually. The second Semi-Annual Report will be the "**Annual Summary Report**". The reports shall be comprised of at least the following:
 - a. **Letter of Transmittal**

A letter transmitting the essential points in each report shall accompany each report. Such a letter shall include a discussion of any requirement violations found since the last such report was submitted, and shall describe actions taken or planned for correcting those violations. If the Discharger has previously submitted a detailed time schedule for correcting said requirement violations, a reference to the correspondence transmitting such schedule will be satisfactory. If no violations have occurred since the last submittal, this shall be stated in the letter of transmittal. Monitoring reports and the letter transmitting the monitoring reports shall be signed by a principal executive officer at the level of vice president or above, or by his/her duly authorized representative, if such representative is responsible for the overall operation of the Facility from which the discharge originates. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete, and correct;
 - b. Each Monitoring Report shall include a compliance evaluation summary. The summary shall contain at least:
 - 1) For each monitored ground water body, a description and graphical presentation of the velocity and direction of ground water flow under/around the Facility, based upon water level elevations taken during the collection of the water quality data submitted in the report;
 - 2) **Pre-Sampling Purge for Samples Obtained From Wells:** For each monitoring well addressed by the report, a description of the method and time of water level measurement, of the type of pump used for purging and the placement of the pump in the well, and of the method of purging (the pumping rate, the equipment and methods used to monitor field pH, temperature, and conductivity during purging, the calibration of the field equipment, results of the pH, temperature, conductivity, and turbidity testing, the well recovery time, and the method of disposing of the purge water);
 - 3) **Sampling:** For each Monitoring Point and Background Monitoring Point addressed by the report, a description of the type of pump -- or other device -- used and its placement for sampling, and a detailed description of the sampling procedure [number and description of the samples, field blanks, travel blanks, and duplicate samples taken, the type of containers and preservatives used, the date and time of sampling, the name and qualifications of the person actually taking the samples, and any other observations];
 - 4) **Post-Sampling Purge [§2550(e)(12)(B)]:** For each monitoring well addressed by the report, a description of how the well was purged to remove all portions of the water that was in the well bore while the sample was being taken;
 - c. A map or aerial photograph showing the locations of observation stations and Monitoring Points;

- d. For each Monitoring Report include laboratory statements of results of all analyses demonstrating compliance with Part I.B.;
- e. An evaluation of the effectiveness of the leachate monitoring and control facilities, and of the run-off/run-on control facilities;
- f. A summary and certification of completion of all Standard Observations [Part I.C.4.] for the Facility, for the perimeter of the Facility, and for the Receiving Waters; and
- g. The quantity and types of wastes discharged and the locations in the Facility where waste has been placed since submittal of the last such report.

2. CONTINGENCY REPORTING

- a. The Discharger shall report by telephone, immediately after it is discovered, evidence of a significant release that may pose an imminent threat to surface or subsurface waters of the State from the Class II surface impoundment or beyond any boundary of the Facility. A written report shall be filed with the Board within seven days, containing at least the following information:
 - 1) A map showing the location(s) of release;
 - 2) An estimate of the flow rate;
 - 3) A description of the nature of the discharge (e.g., all pertinent observations and analyses); and
 - 4) corrective measures underway or proposed.
- b. Should the initial statistical comparison [Part III.A] or non-statistical comparison [Part III.B] indicate, for any Constituent of Concern or Monitoring Parameter, that a statistically significant release is tentatively identified, the Discharger shall immediately notify the Regional Board verbally as to the Monitoring Point(s) and constituent(s) or parameter(s) involved, shall provide written notification by certified mail within seven days of such determination [§2550.8(j)(1)], and shall carry out a discrete retest in accordance with Parts III.C. If the retest confirms the existence of a significant release, the Discharger shall carry out the requirements of Part I.E.2.d. In any case, the Discharger shall inform the Regional Board of the outcome of the retest as soon as the results are available, following up with written results submitted by certified mail within seven days of completing the retest.
- c. If either the Discharger or the Regional Board determines that there is significant physical evidence of a release [§2550.1(3) of Article 5], the Discharger shall immediately notify the Regional Board of this fact by certified mail [or acknowledge the Regional Board's determination] and shall carry out the requirements of Part I.E.2.d. for all potentially-affected monitored media.
- d. If the Discharger concludes that a release, or a statistically significant increase in contaminant concentration, has occurred:
 - 1) Then the Discharger shall, within thirty days, sample for all Constituents of Concern at all Monitoring Points and submit them for laboratory analysis. Within seven days of receiving the laboratory analytical results, the Discharger shall notify the Regional Board, by certified mail, of the concentration of all Constituents of Concern at each Monitoring Point. Because this scan is not to be tested against background, only a single datum is required for each Constituent of Concern at each Monitoring Point [§2550.8(k)(1)];
 - 2) The Discharger shall, within 90 days of discovering the release, submit a Revised Report of Waste Discharge proposing an Evaluation Monitoring Program meeting the requirements of §2550.8(k)(5) and §2550.9 of Article 5; and

- 3) The Discharger shall, within 180 days of discovering the release, submit a preliminary engineering feasibility study meeting the requirements of §2550.8(k)(6) of Article 5 to provide for a corrective action or improve any existing corrective action.

3. ANNUAL SUMMARY REPORT

The Discharger shall submit an annual report to the Board covering the previous monitoring year. The Reporting Period ends December 31. This report shall contain:

- a. A Graphical Presentation of Analytical Data [§2550.7(e)(14) of Article 5]. For each Monitoring Point and any Background Monitoring Points, submit in graphical format the laboratory analytical data for all samples taken within at least the previous five calendar years. Each such graph shall plot the concentration of one or more constituents over time for a given Monitoring Point or Background Monitoring Point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot downgradient data. On the basis of any aberrations noted in the plotted data, the Executive Officer may direct the Discharger to carry out a preliminary investigation [§2510(d)(2)], the results of which will determine whether or not a release is indicated;
- b. All monitoring analytical data obtained during the previous two six-month Reporting Periods, presented in tabular form as well as on a 3½" or 5¼" diskettes, either in MS-DOS/ASCII format or in another file format acceptable to the Executive Officer. Data sets too large to fit on a single 360KB/720KB or 1.2MB/1.4MB diskette may be submitted on disk in a commonly available compressed format [e.g., FASTBACK or NORTON BACKUP, etc.]. The Board regards the submittal of data in hard copy and on diskette as "...the form necessary for..." statistical analysis [§2550.8(h)], in that this facilitates periodic review by the Board's statistical consultant;
- c. A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the waste discharge requirements;
- d. A map showing the area, if any, in which filling has been completed during the previous calendar year;
- e. A written summary of the ground water and if applicable soil-pore gas analyses, indicating any changes made since the previous annual report; and
- f. An evaluation of the effectiveness of the leachate monitoring/control facilities, pursuant to §2543(b,c, & d).

Part II: MONITORING AND OBSERVATION SCHEDULE

A. WASTE MONITORING - (Class II Surface Impoundment) – Report Twice Annually, as part of the Monitoring Report

1. Record the total volume of wastewater discharged to the site during each quarter. map.
2. Record a description of the waste stream.

B. WATER SAMPLING/ANALYSIS FOR MONITORING

1. **Thirty-Day Sample Procurement Limitation.** For any given monitored medium, the samples taken from all Monitoring Points and Background Monitoring Points to satisfy the data analysis requirements for a given Reporting Period shall all be taken within a span not exceeding 30 days, and shall be taken in a manner that insures sample independence to the greatest extent feasible [§2550.7(e)(12)(B) of Article 5]. Ground water sampling shall also include an accurate determination of the ground water surface elevation and field parameters [temperature, electrical conductivity, turbidity] for that Monitoring Point or Background Monitoring Point [§2550.7(e)(13)]; ground water elevations taken prior to purging the well and sampling for Monitoring Parameters shall be used to fulfill the Spring and Fall ground water flow rate/direction analyses. Statistical or non-statistical analysis shall be carried out as soon as the data is available, in accordance with Part III of this program.
2. **Monitoring Points and Background Monitoring Points For Each Monitored Medium:** The Discharger shall sample the following Monitoring Points and Background Monitoring Points in accordance with the sampling schedules given under Parts II.B.2. and II.B.3. [immediately foregoing], taking enough samples to qualify for the most appropriate test under Part III for ground water in the shallow groundwater zone: The Monitoring Points shall be background well(s) and Point of Compliance wells.
3. **Quarterly Determination of Ground Water Flow Rate/Direction [§2550.7(e)(15) of Article 5]:** The Discharger shall measure the water level in each well and determine ground water flow rate and direction in each ground water body described in Part II.B.2. at least quarterly, including the times of expected highest and lowest elevations of the water level for the respective ground water body. This information shall be included in the twice-yearly monitoring reports required under Part I.
4. **"Direct Monitoring" of All Constituents of Concern Every Five Years.** In the absence of a release being indicated (1) pursuant to Parts II.C.2. and III.A.3. for a Monitoring Parameter, (2) based upon physical evidence, pursuant to Part I.E.2.c., or (3) by a study required by the Executive Officer based upon anomalies noted during visual inspection of graphically-depicted analytical data [Part I.E.3.a.], then the Discharger shall sample all Monitoring Points and Background Monitoring Points for water-bearing media for all Constituents of Concern every fifth year, beginning with the year of the effective date of this Monitoring and Reporting Program, with successive direct monitoring efforts being carried out alternately in the Spring of one year [Reporting Period ends March 31] and the Fall of the fifth year thereafter [Reporting Period ends September 30]. Direct monitoring for Constituents of Concern shall be carried out in accordance with Parts II.C.1. and III of this Program.

5. **Initial Background Determination:** For the purpose of establishing an initial pool of background data for each Constituent of Concern at each Background Monitoring Point in each monitored medium [§2550.7(e)(6)]:
 - a. Whenever a new Constituent of Concern is added to the Water Quality Protection Standard, including any added by the adoption of this Order, the Discharger shall collect at least one sample quarterly for at least one year from each Background Monitoring Point in each monitored medium and analyze for the newly-added constituent(s); and
 - b. Whenever a new Background Monitoring Point is added, including any added by this Order, the Discharger shall sample it at least quarterly for at least one year, analyzing for all Constituents of Concern and Monitoring Parameters.
6. **Quarterly Determination of Ground Water Flow Rate/Direction [§2550.7(e)(15) of Article 5]:** The Discharger shall measure the water level in each well and determine ground water flow rate and direction in each ground water body described in Part II.C.4. at least quarterly, including the times of expected highest and lowest elevations of the water level for the respective ground water body. This information shall be included in the twice-yearly monitoring reports required under Part II.C.2.

**Part III: STATISTICAL AND NON-STATISTICAL ANALYSIS OF SAMPLE
DATA DURING A DETECTION MONITORING PROGRAM**

The Discharger has the option of using a statistical or non-statistical method to determine if a release has occurred in this monitoring program. One of the non-statistical method options is a direct comparison of the detected concentrations at a monitoring point with the maximum allowable concentration limits included in the Dischargers monitoring program plan (Provision C.1). If a maximum allowable concentration limit is exceeded, the Discharger has the additional option of performing one of the statistical or non-statistical methods included in this section, or the Discharger can propose an statistical analysis acceptable to the Executive Officer. The following is a description of recommended options available to the Discharger.

- A. **Statistical Methods.** The Discharger may use one of the following statistical methods to analyze Constituents of Concern or Monitoring Parameters which exhibit concentrations exceeding their respective Maximum Allowable Concentration Limits (MACL). Except for pH, which uses a two-tailed approach, the statistical analysis for all constituents and parameters shall be one-tailed [testing only for statistically significant increase relative to background]:
1. **One-Way Parametric Analysis of Variance (ANOVA), followed by multiple comparisons [§2550.7(e)(8)(A)].** This method requires at least four independent samples from each Monitoring Point and Background Monitoring Point during each sampling episode. It shall be used when the pooled background data for the parameter or constituent, obtained during a given sampling period, has not more than 15% of the data below the PQL. Prior to analysis, replace all "trace" determinations with a value halfway between the PQL and the MDL values reported for that sample run, and replace all "non-detect" determinations with a value equal to half the MDL value reported for that sample run. The ANOVA shall be carried out at the 95% confidence level. Following the ANOVA, the data from each downgradient Monitoring Point shall be tested at a 99% confidence level against the pooled background data. If these multiple comparisons cause the Null Hypothesis [i.e., that there is no release] to be rejected at any Monitoring Point, the Discharger shall conclude that a release is tentatively indicated for that parameter or constituent;
 2. **One-Way Non-Parametric ANOVA (Kruskal-Wallis Test), followed by multiple comparisons.** This method requires at least nine independent samples from each Monitoring Point and Background Monitoring Point; therefore, the Discharger shall anticipate the need for taking more than four samples per Monitoring Point, based upon past monitoring results. This method shall be used when the pooled background data for the parameter or constituent, obtained within a given sampling period, has not more than 50% of the data below the PQL. The ANOVA shall be carried out at the 95% confidence level. Following the ANOVA, the data from each downgradient Monitoring Point shall be tested at a 99% confidence level against the pooled background data. If these multiple comparisons cause the Null Hypothesis (i.e., that there is no release) to be rejected at any Monitoring Point, the Discharger shall conclude that a release is tentatively indicated for that parameter or constituent; or
 3. **Method of Proportions.** This method may be used if the "combined data set" -- the data from a given Monitoring Point in combination with the data from the Background Monitoring Points -- has between 50% and 90% of the data below the MDL for the constituent or parameter in question. This method (1) requires at least nine downgradient data points per Monitoring Point per Reporting Period, (2) requires at least thirty data points in the combined data set, and (3) requires that $n * P > 5$ [where n is the number of data points in the combined data set and P is the proportion of the combined set that exceeds the MDL]; therefore, the Discharger shall anticipate the number of samples required, based upon past monitoring results. The test shall be carried out at the 99% confidence level. If the analysis

results in rejection of the Null Hypothesis [i.e., that there is no release], the Discharger shall conclude that a release is tentatively indicated for that constituent or parameter, or

- B. **Non-Statistical Method.** The Discharger may use the following non-statistical method for the Monitoring Parameters and for all Constituents of Concern which are not amenable to the statistical tests under Part III.A. The first step of the test involves building a list of "qualifying constituents" for each Monitoring Point, as explained below for each variant of the test; the list is then inspected to see if it meets either of two possible triggering conditions. Each qualifying constituent at a Monitoring Point shall be determined based on either (A) the data from a single sample for that constituent, taken during that Reporting Period from that Monitoring Point, or (B) [where several independent samples have been analyzed for that constituent at a given Monitoring Point] from the sample which contains the largest number of qualifying constituents. Background Monitoring Points shall be represented by the data from all samples taken from them during that Reporting Period [at least one sample from each Background Monitoring Point]. The method shall be implemented as follows:
1. **For the Volatile Organics Monitoring Parameter For Water Samples [VOC_{water}]:** For any given Monitoring Point, the VOC_{water} Monitoring Parameter is a composite parameter addressing all VOCs detectable using USEPA Method 601/602. The test involves compiling a list of "qualifying constituents" consisting of each VOC [including any unidentified peaks] which (A) exceeds its MDL in the Monitoring Point sample, and also (B) exceeds its MDL in less than ten percent of the samples taken from Background Monitoring Points. The Discharger shall conclude that a release is tentatively indicated for the VOC_{water} Monitoring Parameter if the list contains either (A) two or more qualifying constituents, or (B) one qualifying constituent that exceeds its PQL;
 2. **For Constituents of Concern:** Compile a list of constituents that exceed their respective MDL at the Monitoring Point yet do so in less than ten percent of background samples [i.e., "qualifying constituents"]. The Discharger shall conclude that a release is tentatively indicated if the list contains either (A) two or more qualifying constituents, or (B) one qualifying constituent which exceeds its PQL.
- C. **Discrete Retest** [§2550.7(e)(8)(E) of Article 5]. In the event that the Discharger concludes that a release has been tentatively indicated [under Parts III.A or III.B], the Discharger may be required to – within 30 days of this indication – collect two new suites of samples for the indicated Constituent(s) of Concern or Monitoring Parameter(s) at each indicating Monitoring Point, collecting at least as many samples per suite as were used for the initial test. Resampling of the Background Monitoring Points is optional. As soon as the data is available, the Discharger shall rerun the statistical method [or non-statistical comparison] separately upon each suite of retest data. For any indicated Monitoring Parameter or Constituent of Concern at an affected Monitoring Point, if the test results of either [or both] of the retest data suites confirms the original indication, the Discharger shall conclude that a release has been discovered. All retests shall be carried out only for the Monitoring Point(s) for which a release is tentatively indicated, and only for the Constituent of Concern or Monitoring Parameter which triggered the indication there, as follows:
1. If an ANOVA method was used, the retest shall involve only a repeat of the multiple comparison procedure, carried out separately on each of the two new suites of samples taken from the indicating Monitoring Point;
 2. If the Method of Proportions statistical test was used, the retest shall consist of a full repeat of the statistical test for the indicated constituent or parameter, using the new sample suites from the indicating Monitoring Point;

D. Response to VOC Detection in Background

1. Except as indicated in Part III.B.2., any time the laboratory analysis of a sample from a Background Monitoring Point, sampled for VOCs under Part III.A., shows either (1) two or more VOCs above their respective MDL, or (2) one VOC above its respective PQL, then the Discharger shall immediately notify the Regional Board by phone, shall follow up with written notification by certified mail within seven days, and shall obtain two new independent VOC samples from that Background Monitoring Point and send them for laboratory analysis of all detectable VOCs within thirty days. If either or both the new samples validates the presence of VOC(s), using the above procedure, the Discharger shall:
 - a. immediately notify the Regional Board about the VOC(s) verified to be present at that Background Monitoring Point, and follow up with written notification submitted by certified mail within seven days of validation; and
 - b. within 180 days of validation, submit a report – acceptable to the Executive Officer – which examines the possibility that the detected VOC(s) originated from the Unit and proposing appropriate changes to the monitoring program.
2. If the Executive Officer determines, after reviewing the report submitted under Part III.B.1.b., that the VOC(s) detected originated from a source other than the Unit, the Executive Officer will make appropriate changes to the monitoring program.
3. If the Executive Officer determines, after reviewing the report submitted under Part III.B.1.b., that the detected VOC(s) most likely originated from the Unit, the Discharger shall assume that a release has been detected and shall immediately begin carrying out the requirements of Part I.E.2.d.

I, Steven R. Ritchie, Executive Officer, do hereby certify that the foregoing Monitoring and Reporting Program:

1. Will be developed in accordance with the procedure set forth in this regional Board's Resolution 73-16 in order to obtain data and documentation of compliance with waste discharge requirements established by this Board.
2. Is effective within 1 year upon approval of the Discharger's Article 5 monitoring plan submittal, as required by Provision C.1 of this Order.
3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the Discharger upon which revisions may be ordered by the Executive Officer or the Regional Board.


STEVEN R. RITCHIE
EXECUTIVE OFFICER

October 20, 1993
Date Ordered